39. The method of claim 38 comprising maintaining a pressure within the reaction chamber at about 600 Torr during the depositing.

40. The method of claim 18 comprising providing a substrate within a reaction chamber at a temperature of about 500 °C.

41. The method of claim 25 comprising maintaining a pressure within the reaction chamber at from about 600 Torr to about 1 atmosphere during the depositing.

42. The method of claim 25 comprising providing a substrate within a reaction chamber at a temperature of about 500 °C.--

REMARKS

Claims 1, 3-8, 10, 11, 13-28 and 35-42 are pending in the above-referenced application. Claims 2, 9, 12 and 29-34 were canceled and new Claims 35-42 were added. The specification was amended to correct an inadvertent transposition of two values.

35 U.S.C. 102(b) rejection:

Claims 1-8, 13-21, 23, 25 and 29-34 stand rejected under 35 U.S.C. 102(b) as being clearly anticipated by Homma (U.S. Patent No. 5,288,518). Applicants traverse with respect to Claims 1, 3-8, 13-21, 23 and 25. The rejection is moot with respect to canceled Claims 2 and 29-34.

Each of Applicants' independent Claims 1, 18, 21, 23 and 25 has been amended to include a temperature range from about 400 °C to about 700 °C for the substrate within the reaction chamber, and a deposition rate range from about 1000 Å/min to about 10000 Å/min for the depositing of the appropriate material.

In contrast, Homma does not teach or suggest any deposition rate, and only teaches a deposition temperature of 200 °C. Therefore, Applicants assert that Homma does not explicitly teach every limitation of Claims 1, 18, 21, 23 and 25. While Homma states at column 4, lines 26-27, that a temperature higher than 200 °C may be used, Applicants direct the Examiner to column 3, lines 28-32, where Homma states that "the fluorine-containing silicon oxide film formed ... at a lower temperature of 200 °C according to this example is superior to the prior art ... film formed at ... 400°C ." Thus Applicants assert that it cannot be fairly stated that Homma even suggests, yet alone implicitly teaches, employing temperatures as high as about 400°C

Since M.P.E.P. 706.02 states that "for anticipation under U.S.C. 102, the reference must teach every aspect of the claimed invention either explicitly or impliedly" it must follow that the rejection of Claims 1, 18, 21, 23 and 25, as well as Claims 3-8, 13-17, 19, 20, 22 and 24, which depend directly or indirectly therefrom, is improper and must be withdrawn.

35 U.S.C. 103(a) rejection:

Claims 9-12 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Homma as applied to Claim 1, and further in view of Maeda et al. (U.S. Patent

No. 5, 800, 877). Applicants traverse with respect to Claims 10 and 11. The rejection is moot with respect to canceled Claims 9 and 12.

Specifically, the Examiner admits that Homma fails to disclose the deposition rate of the insulating material and the pressure of the reaction chamber. However, the Examiner alleges that Maeda et al. discloses a deposition rate within the claimed range and that as the deposition method of Maeda et al. is atmospheric CVD, the pressure of the reactor in Maeda et al. encompasses Applicants' claimed range.

Applicants' Claim 1 has been amended to include a temperature range from about 400 °C to about 700 °C for the substrate within the reaction chamber (essentially the temperature previously claimed in the now canceled Claim 12). As Claims 10 and 11 depend from Claim 1, this limitation is also included in each dependent claim. As discussed above, Homma does not teach or even suggest the temperature range limitation as recited in Claim 1. Rather, Homma teaches that a lower temperature, about 200 °C, is desirable and that temperatures as high as 400°C result in less desirable films. Maeda et al. also teach the use of a lower temperature range than that claimed by Applicants; specifically, Maeda et al. teach a temperature range of between 100 °C and 350 °C. Thus as neither Homma nor Maeda et al. individually or in any combination teach or suggest the claimed temperature range, the Examiner's combination of the cited art is shown fatally flawed before even reaching the issues of deposition rate and pressure. Hence, no additional argument, or admission, need be made to be responsive to this rejection.

However, the Examiner noted with respect to the now canceled Claim 12, that the temperature range of Maeda et al., at its higher limit, is close to the lower

limit of Applicants' claimed range. Applicants understood this to imply that this overlapping or near overlapping suggested Applicants' range, as the Examiner stated that "no criticality ha[d] been established" with regard to the claimed range. (Page 6, line 7 of the Office Action) Applicants cannot agree with this implication and respectfully assert that Maeda et al imply that a temperature range of between 100° to 350 °C is critical to their invention. For example, at column 4, lines 32-34, Maeda et al. state that for their evaluations the temperature was varied film by film within the range of 100° to 350 °C, which is reflected in the data presented in Figs. 3 and 5. No temperatures outside this range being supplied. Referring to Fig. 8, each of the characterized films was formed at either 300°C or 350°C. At column 5, lines 6-10, Maeda et al. state that the refractive index data presented in Fig. 5 shows that as the temperature increases, it becomes more and more difficult to introduce fluorine into the film, the introduction of fluorine into the film being an object of the Maeda et al. In addition, Fig. 3 shows that the deposition rate of Maeda et al. reaches a peak at about 250 °C and then steadily decreases to a minimum value at 350°C. A person of ordinary skill in the art would have no choice but to assume that the precipitous drop in deposition rate from the peak at 250°C would continue if a temperature greater than 350°C were employed. Thus Maeda et al. cannot be fairly read to imply that use of a temperature in excess of 350°C would be desirable. Finally, it should be noted that while Maeda et al. refer to a temperature range of "300° to 400 °C" in the Summary at column 2, line 59, such a range is not supported by the teachings of specification and is in fact contra-indicated.

Applicants respectfully contend, therefore, that no combination of Homma with Maeda et al. fully teach or suggest Applicants' invention as claimed in Claims 10 and 11. Hence Applicants' assert that the rejection of Claims 10 and 11 is improper and must be withdrawn.

Claims 22, 24 and 26-28 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Homma as applied to Claims 21, 23 and 25, and further in view of Monkowski et al. (U.S. Patent No. 5, 104, 482). Applicants traverse.

The Examiner states that Homma teaches a method as described supra, which Applicants interpret to mean the method of Applicants' Claims 21, 23 and 25 from which Claims 22, 24 and 26-28 depend, respectively.

Applicants have amended Claims 21, 23 and 25 to include a temperature range from about 400 °C to about 700 °C for the substrate within the reaction chamber, and a deposition rate range from about 1000 Å/min to about 10000 Å/min for the depositing of the appropriate material. As shown with respect to the rejection under 102(b), Homma does not teach these limitations. Therefore, for at least this deficiency, a combination of Homma with Monkowski et al. cannot teach or suggest Applicants' invention as claimed in Claims 22, 24 and 26-28. However even if, arguendo, Homma were sufficient, Applicants cannot agree that it would have been obvious to one having ordinary skill in the art to use the dopant sources of Monkowski et al. with the method of Homma.

Monkowski et al. teaches vaporization of the liquid reactants, i.e. TEPO and TEB, at temperatures between 150°C and 275°C. (Col. 8, lines 12-13). Monkowski et al. states that such temperatures are selected "to completely vaporize all of the

liquid reactants without introducing thermal decomposition." (Col. 8, lines 9-11). The method of Homma, however, teaches a reaction temperature of 200°C. Thus Homma's method would be incapable of causing thermal decomposition of the TEPO and TEB that is required for film formation. Therefore, Applicants assert that it cannot be fairly stated that a person of ordinary skill in the art would believe it possible to use the dopant sources of Monkowski et al. with the method of Homma. Hence Applicants respectfully assert that this rejection under 35 U.S.C. 103(a) is improper and must be withdrawn.

In summary, Applicants have shown by and through the above argument that Claims 1, 3-8, 10, 11, 13-28 are in condition for immediate allowance. In addition, as new Claims 35-42 depend directly or indirectly from an independent claim argued above are also in condition for immediate allowance. Reconsideration and allowance of this application in view of the remarks and amendments herein is requested.

Respectfully submitted,

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